REMARKS

Introduction

Claim 1 has been amended editorially. Applicants submit that the present Amendment does not generate any new matter issue. Applicants have carefully considered the July 13, 2007 Office Action, and the comments that follow, together with the accompanying Declaration by Masuhiro Natsuhara and his *Curriculum Vitae*, are presented in a bona fide effort to address all issues raised in that Action and thereby place this case in condition for allowance.

Examiner's Interview

Applicant would like to thank Examiner Group for extending the courtesy of a telephone interview with the Applicants' representative on September 12, 2007. During the interview, Applicants' representative explained that the increment of warp was measured *after* sintering. The Applicants' representative asserted that the cited references discuss warpage *during* sintering.

The Examiner indicated that he would only consider our arguments of unexpected results with a showing of objective evidence, such as a Declaration from the inventors. The Examiner suggested the submission of a Declaration based on the decision of the Board of Patent Appeals and Interferences ("the Board") on August 29, 2003. He stated that this objective evidence should include comparative examples measuring the increment of warp for the cited references.

Claim Rejection Under 35 U.S.C. § 112

Claim 1 stands rejected under 35 U.S.C. § 112, second paragraph, as purportedly being indefinite. Applicants respectfully submit that the rejection is moot in view of amendment of claim 1, which amended the phrase, "the surface roughness" to --a surface roughness--.

Claim Rejections Under 35 U.S.C. § 102/103

Claims 1, 4, and 5 stand rejected under 35 U.S.C. § 102 for lack of novelty, or alternatively, under 35 U.S.C. § 103 for obviousness over U.S. Patent No. 5,424,261 to Harris et al. (hereinafter Harris). Claims 1, 4, and 5 were also rejected under 35 U.S.C. § 102 for lack of novelty, or alternatively, under 35 U.S.C. § 103 for obviousness over Sugiura et al. (U.S. 5,165,983 – hereinafter Sugiura). Claims 1, 4, and 5 were also rejected under 35 U.S.C. § 102 for lack of novelty, or alternatively, under 35 U.S.C. § 103 for obviousness over Japanese Document 08157365. Claims 1, 4, and 5 were also rejected under 35 U.S.C. § 102 for lack of novelty, or alternatively, under 35 U.S.C. § 103 for obviousness over Japanese Document 5-229873. Applicants traverse.

The Office Action states that the Applicants' argument including the increment in warp after heat treatment is not persuasive in overcoming the rejection. The Office Action asserts that the Applicants have not shown by way of tangible evidence that the prior art of record possess properties outside of the claimed properties.

Applicants submit concurrently herewith, an executed Declaration by Masuhiro Natsuhara to further demonstrate that an aluminum nitride ceramic base material having the same composition as Sample Nos. 30-35 are produced by sintering with a setter at 850°C for one hour (Paragraphs 3-5 and Table 1a). Specifically, the Declaration clearly demonstrates that the

setter has a surface roughness (Rmax) of 5 μm or less (Table 1a). After the heat treatment, the magnitude of distortion (warp) and increment in the warp were measured for the sintered bodies in accordance with the method described in the specification at page 13, line 22 – pg. 14, line 17 and in Fig. 1 (Paragraph 6). The increment in the warp after heat treatment for Sample Nos. 30-35 results in an increment in warp of not more than 2.0×10^{-2} μm/mm (Paragraphs 8 and 9 and Table 2a of the Declaration). Applicants submit that the data presented in the Declaration supports Applicants' position that the increment in the warp after the heat treatment becomes larger when the material of the setter is denser (Paragraph 9 of the Declaration).

The Office Action asserts that Harris teaches achieving low camber (warp) by applying weight to aluminum nitride bodies during sintering.

Harris discusses sintering the aluminum nitride samples at about 1600°C **for 10 hours** in a refractory metal furnace (col. 6, lines 40-42; col. 9, lines 11-13). Harris discusses measuring the magnitude of warp during sintering, not **after** sintering. Thus, Harris is *silent* on the increment of warp of the aluminum nitride **after** the heat treatment.

The Office Action also asserts that in the examples of Sugiura, there is no sign of warpage.

Sugiura discusses burning 20 rectangular pieces of aluminum nitride in an atmosphere of nitrogen gas at 1,800°C for two hours (col. 4, lines 36-45). Part of the sintered rectangular pieces of Sugiura were warped about 2 mm in the direction in length. Sugiura then sintered the rectangular pieces on a support base of ceramic in nitrogen gas at about 1,700°C for one hour to correct the deformation. The sintered rectangular pieces after this heating had mended to a flatness of not more than 80 μm (col. 4, lines 60-65). Thus, the warpage values of Sugiura

exceed the claimed value for the increment of warp of **not more than 2.0 x 10^{-2} μm/mm** after their heat treatment.

The Office Action asserts that the Japanese document uses setters in a process not unlike the instant invention.

In response to the previous assertion, Applicants request that the Examiner clarify which Japanese document is being relying upon.

The Office Action asserts that the Japanese Document 5-229873 teaches aluminum nitride bodies with no warpage after sintering.

Contrary to the Examiner's assertion, the Japanese Document 5-229873 exhibits warpage, which is described in Table 1 found in Paragraph [0088]. Further in the Japanese Document 5-229873, the warpage of aluminum nitride (shown as curvature values in μm/in) *exceeds* the claimed values of **not more than 2.0 x 10^{-2} μm/mm**.

Thus, none of the references, individually or combined, at a minimum, disclose or suggest, "...the aluminum nitride ceramic base material having an increment in warp **after** a single heat treatment at 850°C for one hour of not more than 2.0 x 10^{-2} μm/mm," as recited in amended claim 1.

Based upon the arguments submitted *supra*, it should be apparent that a *prima facie* basis to deny patentability to the claimed invention has not been established for want of the requisite factual basis. Moreover, there are potent indicia of nonobviousness of record to support the patentability of the present claimed subject matter. Indeed, the advantageous effect of the present invention in the smooth surface of the setter suppresses the distortion of the formed body during sintering, is unknown to the prior art of record. Accordingly, the rejection of claims 1, 4, and 5 should be withdrawn.

Claims 1, 4, and 5 are rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over U.S. Patent Nos. 4,920,640 (hereinafter Enloe '640) and 5,017,434 (hereinafter Enloe '434), each taken alone.

The Office Action states Enloe '434 teaches a sintered AlN material produced using BN setters and having a surface roughness of 49 micro inches and a warpage of .04%. The Office Action asserts that Enloe '640 uses BN setters to prevent stresses in the AlN body.

As a preliminary matter, the citations for Enloe '434 and '640 are superimposed. Enloe '434 and Enloe '640 discuss AlN setters. Neither Enloe '434 nor Enloe '640, individually or combined, disclose or suggest, "...the aluminum nitride ceramic base material having an increment in warp after a single heat treatment at 850°C for one hour of not more than 2.0×10^{-2} μm/mm," as recited in amended claim 1.

Withdrawal of the foregoing rejections is respectfully requested.

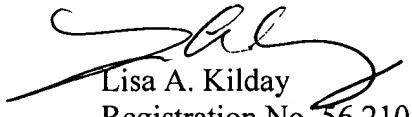
Conclusion

In view of the foregoing and the Declaration, Applicants submit that this application should be allowed and the case passed to issue. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP



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